

IN THE CLAIMS

1. (currently amended) ~~Temperature monitoring device of a matter that is at least partly of water, such as food, comprising a~~ Wireless temperature sensor for sensing the temperature of a matter that is at least partly of water, including food, comprising:

a temperature transducer of ~~the~~ said matter;

an electromagnetic wave transmitter circuit electrically connected to the temperature transducer, comprising a converter of electric signals coming from the transducer to electromagnetic type signals;

a hermetic and ~~highly~~ thermal conductive case designed to be fitted with ~~all of the~~ electric system comprising the temperature transducer and the transmitter circuit;

wherein the sensor is laid out so that the temperature transducer is located near to the transmitter circuit, thereby forming a compact unit to be completely inserted into said matter so that it can be only subjected to the heat present inside the matter; wherein the sensor further comprises an autonomous non-saline and non-alkaline electric cell, placed inside the case, for supplying electric power to the whole sensor.

2. (cancelled)

3. (currently amended) ~~Sensor Device~~ according to ~~the previous claim 2~~ 1, wherein the ~~power supply~~ electric cell is near to the transducer and the transmitter circuit, thereby forming a compact unit.

4. (currently amended) ~~Sensor Device~~ according to claim ~~23~~ 3, wherein the ~~power supply~~ electric cell is distant from the transmitter and the transducer so that it remains outside the ~~food-matter~~ when the sensor is inserted into the ~~food~~ matter.

5. (currently amended) ~~Sensor Device~~ according to claim 4, wherein the ~~power supply~~ electric cell is protected against heat by a ~~cover of thermal insulating material~~ cover, thus forming a thermal shield.

6. (currently amended) Sensor Device according to claim 5, wherein the cover is of silicone.

7. (currently amended) Sensor Device according to ~~claim 2, claim 3, claim 4, claim 5 or claim 6~~ claims 1 or 3-6, wherein ~~the said autonomous power supply of the sensor~~ electric cell can operate up to temperatures of ~~approximately about~~ 130°C (266°F).

8. (currently amended) Sensor Device according to ~~claim 2~~ claims 1 or 3-6, wherein the autonomous ~~power supply of the sensor~~ electric cell can operate from temperatures of ~~approximately about~~ -40°C (40°F).

9. (cancelled)

10. (currently amended) Sensor Device according to claim 1 or 3 to 6, wherein ~~the said autonomous power supply of the sensor~~ electric cell is a thionyl lithium electric cell.

11. (currently amended) Sensor Device according to claim 1 or 3-6, wherein the case is electrically conductive, and wherein the sensor further comprises means for switching-off electric power supplied by the power supply source when the sensor is not in contact with ~~the~~ said matter, the power supply switch-off means being sensitive to the conductivity of ~~the~~ said matter.

12. (currently amended) Sensor Device according to claim 1 or 3-6, wherein the transmitter circuit transmits the electromagnetic waves by bursts.

13. (currently amended) Sensor Device according to one claim 1 or 3-6, wherein the hermetic case is of a single piece.

14. (currently amended) Sensor Device according to claim 1 or 3-6, wherein ~~that the~~ case is made of several fitted pieces that can be disassembled.

15. (currently amended) ~~Sensor Device~~ according to claim 14, wherein assembly means for assembling of two pieces of the hermetic case are metallic and create an electric contact for the operating of the sensor.

16. (currently amended) ~~Sensor Device~~ according to claim 1 or 3 to 6, wherein the case is laid out so as to facilitate the insertion of the sensor into ~~the~~ said matter.

17. (currently amended) ~~Sensor Device~~ according to claim 1 or 3-6, wherein the sensor further comprises an electromagnetic wave transmitting aerial laid out so as to further constitute means of gripping.

18. (currently amended) ~~Sensor Device~~ according to claim 17, wherein the aerial has ~~is covered with an~~ electrical insulating material~~cover~~.

19. (currently amended) ~~Sensor Device~~ according to claim 18, wherein the aerial ~~is covered with~~ electrical insulating cover ~~is a~~ silicone foam.

20. (currently amended) ~~Device~~ according to claim 1, ~~further comprising~~ Temperature monitoring device of a matter that is at least partly of water, including food, intended to be placed in an oven comprising:

a wireless temperature sensor comprising:

a temperature transducer of said matter;

an electromagnetic wave transmitter circuit electrically connected to the temperature transducer, comprising a converter of electric signals coming from the transducer to electromagnetic type signals;

a hermetic and thermal conductive case designed to be fitted with all of the electric system comprising the temperature transducer and the transmitter circuit;

wherein the sensor is laid out so that the temperature transducer is located near the transmitter circuit, thereby forming a compact unit to be completely inserted into said matter so that it can be only subjected to the heat present inside the matter; and

a control unit autonomous and independent from the oven behaviour, and controlling the

thermal data transmitted from the sensor by electromagnetic ~~way~~waves, ~~this said~~ control unit comprising:

- a receiver for the type of electromagnetic waves transmitted by the sensor;
- a micro-controller capable of controlling the thermal data in electromagnetic form received from the sensor by the receiver, and of transmitting at least a part of it to a user interface;
- the user interface comprising transmission means of the thermal data in a form understandable to the user of the device.

21. (currently amended) Device according to claim 20, wherein the control unit further comprises a memory capable of storing thermal data and wherein the micro-controller is capable of processing the thermal data received from the sensor in accordance with this thermal data.

22. (previously presented) Device according to claim 21, wherein the user interface comprises an alarm, wherein thermal data stored in the memory corresponds to a temperature threshold, and in that the micro-controller triggers the alarm if the temperature detected by the sensor is greater than the temperature threshold.

23. (previously presented) Device according to claim 21 or claim 22, wherein the user interface comprises means that allow the user to input the data into the memory.

24. (currently amended) Device according to claim 20 to 22, wherein the user interface comprises an alarm, and wherein the micro-controller triggers the alarm if it does not receive any electromagnetic waves over a pre-set duration or if it does not receive at least one ~~or several~~ thermal informations that it should have received.

25. (currently amended) Temperature monitoring process for a matter that is at least partly of water, ~~such as~~including food, the matter having a temperature less than approximately 130°C (266°F), activating the temperature monitoring device according to claims ~~120 to 22~~, wherein the wireless part of the temperature sensor comprising the transducer and the transmitter

circuit is inserted into ~~the~~ said matter.

26. (currently amended) ~~Process~~ Temperature monitoring process according to claim 25, wherein the part of the sensor comprising the power supply is also inserted into ~~the~~ said matter.